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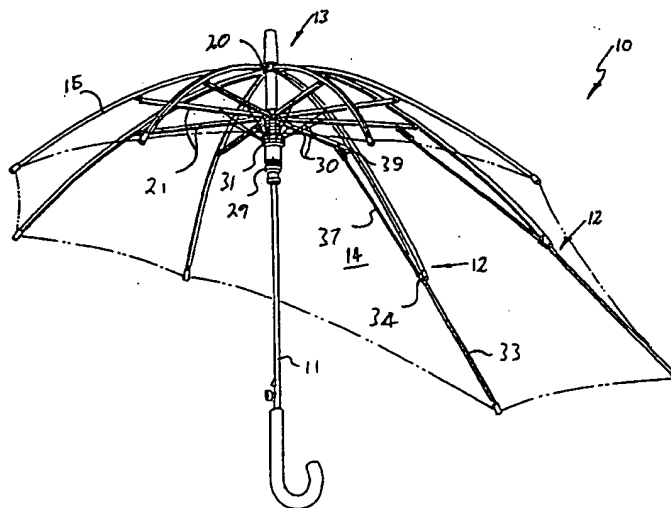
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With international search report.

(54) Title: UMBRELLA



(57) Abstract

An umbrella (10) comprises an asymmetrical shape by forming at least two ribs (12) longer than the remaining ribs through extension portions (33) which are attached to pivot members (34) pivotally attached to eyelets (35) by means of pins (36). The pivot members (34) are also pivotally attached to links (37) by means of pins (38) with the links (37) being secured to springs (39) by pins (40). Movement of runner (29) towards the apex (13) of the shaft (11) forces the links (37) to extend the extension portion (33) making the covering (14) fully extended therefore providing more coverage to the rear of the shaft (11). When umbrella is folded the extension portions (33) pivot on eyelets (35) resting on beams (15) causing all the ribs to be of equal length for stowage.

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UMBRELLA

Technical Field

The present invention relates to umbrellas.

Background of the Invention

5 Umbrellas conventionally consist of a shaft to one end of which there is attached ribs which are to extend radially from the shaft and support a cover sheet. The ribs are of the same length. In some instances the ribs comprise a single length of material while in other instances each rib may consist of two rib portions pivotally attached at adjacent ends.

10 Known umbrellas suffer from the disadvantage that they do not provide adequate protection from rain, particularly when the rain is being wind driven in a particular direction.

Object of the Invention

It is the object of the present invention to overcome or substantially ameliorate
15 the above disadvantage.

Summary of the Invention

There is disclosed herein an umbrella having:

a shaft;

a plurality of ribs pivotally attached to the shaft adjacent an end thereof for
20 movement about axes extending generally transverse of the shaft, the ribs being angularly spaced about the shaft and movable from a folded configuration lodged adjacent the shaft to a shelter configuration extending generally radially from the shaft;

a cover sheet supported by the ribs; and wherein

at least two of the ribs include extension portions so that the cover sheet is
25 radially elongated when the ribs are in the shelter configuration.

Brief Description of the Drawings

A preferred form of the present invention will now be described by way of example with reference to the accompanying drawings wherein:

Figure 1 is a schematic perspective view of an umbrella in its shelter
30 configuration;

Figure 2 is a schematic perspective view of the umbrella of Figure 1 in a partly folded configuration;

Figure 3 is a further schematic perspective view of the umbrella of Figure 1;

Figure 4 is a schematic parts exploded perspective view of a portion of the
35 umbrella of Figure 1; and

Figure 5 is a schematic perspective view of a portion of the umbrella of Figure 1 in a partly folded configuration.

Detailed Description of the Preferred Embodiment

In the accompanying drawings there is schematically depicted an umbrella 10. The umbrella 10 includes a shaft 11 which supports a plurality of ribs 12. The ribs 12 are pivotally attached to the shaft 11 adjacent the upper end 13 thereof, so as to be pivotally movable between the shelter configuration of Figure 1 and a folded configuration with the ribs 12 located adjacent the shaft 11. Supported by the ribs 12 is a cover sheet 14.

The ribs 12 include an upper beam 15 provided at one end with an eyelet 16 which is used to secure the beam 15 to a slotted flange 17 at the end 13. Typically the end 18 of the beam 15 is inserted in one of the slots 19 of the flange 17, with a metal loop 42 then passing through the eyelet 16 and around the annular slot 20 formed in the flange 17. Accordingly, the beams 15 are pivotable about axes extending generally transverse of the shaft 11.

Each beam 15 is associated with a brace 21. Each brace 21 has an eyelet 22 pivotally attached to an eyelet 23 by means of a pin 24 so that each beam 15 has an associated brace 21 pivotally attached to it. The radially inner end of each brace 21 is provided with an eyelet 25 which is received in a flange 26. The flange 26 is provided with slots 27, which receive the eyelets 25, as well as an annular slot 28 which receives a metal loop 43 which passes through the eyelets 25 so that the braces 21 are pivotally attached to the flange 26.

A runner 29 is slidable along the shaft 11 and is held in a position shown in Figure 4 by means of a catch (not illustrated). The runner 29 has pivotally attached to it links 30 which upon movement of the runner 29 cause the umbrella 10 to fold or unfold. The links 30 extend to a slotted flange 31, with the links 30 being pivotally attached to the flange 31 in a similar manner described with reference to flanges 20 and 26. A spring 32 extends between the flanges 27 and 31 which urges the ribs 12 to their shelter configuration so as to maintain the cover sheet tight.

The umbrella 10 has one side elongated as best seen in Figures 1 and 4. More particularly, two of the ribs 12 are provided with extension portions 33 which are attached to pivot members 34 pivotally attached to eyelets 35 by means of pins 36. The pivot members 34 are also pivotally attached to links 37 by means of pins 38, with the links 37 being secured to springs 39 by pins 40. As can be seen in Figure 5, the link 37 is attached to the pivot member 35 at a location spaced from the pin. The springs 39 are also pivotally attached to the braces 21 by means of pins 41. The links 37 move the extension portions 33 to their shelter position, while the springs 39 inhibit the link 37 breaking from the eyelet 22 during opening and closing.

It should be appreciated that the umbrella 10 may be manually operated or alternatively spring loaded so as to be urged by a spring from the folded configuration to the covered configuration, and automatically moved to the covered configuration upon release of an appropriate catch (as described above).

5 By providing a radially elongated portion 44 the umbrella 10 acts in protecting the user from rain and in particular from rain that is wind driven.

The claims defining the invention are as follows:

1. An umbrella having:
a shaft;
a plurality of ribs pivotally attached to the shaft adjacent an end thereof for
5 movement about axes extending generally transverse of the shaft, the ribs being angularly
spaced about the shaft and movable from a folded configuration lodged adjacent the shaft
to a shelter configuration extending generally radially from the shaft;
a cover sheet supported by the ribs; and wherein
at least two of the ribs include extension portions so that the cover sheet is
10 radially elongated when the ribs are in the shelter configuration.
2. The umbrella of claim 1 wherein the extension portions are pivotally
attached to their associated ribs.
3. The umbrella of claim 2 further including:
a runner slidably mounted on the stem for longitudinal movement thereof to
15 move the ribs between their folded configuration and shelter configuration;
a plurality of braces, each brace having an end pivotally attached to an associated
rib and a further end pivotally attached to the runner; and
resilient means extending from said extension portion end and the brace of the
associated rib to urge the extension portions to the shelter position.
- 20 4. The umbrella of claim 3 wherein said resilient means includes a link and
a spring attached thereto, with the link and spring extending between the extension
portion and the associated brace.
5. The umbrella of claim 4 further including a plurality of links, each link
being pivotally attached to an associated brace and the runner.
- 25 6. The umbrella of any one of claims 1 to 4, wherein the umbrella is
manually moved between said folded configuration and said shelter configuration.
7. The umbrella of any one of claims 1 to 4, further including resilient
means which when released moves the umbrella from the folded configuration to the
shelter configuration.
- 30 8. An umbrella substantially as herein before described with reference to
the accompanying drawings.

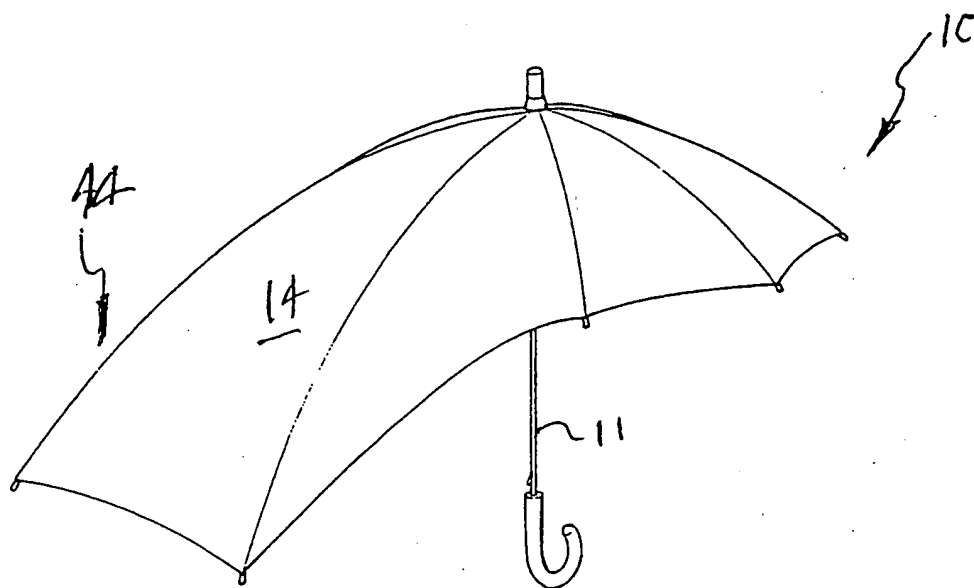


Fig 1

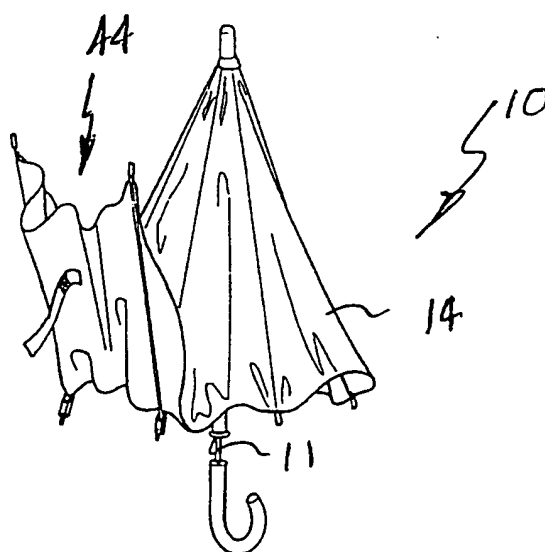


Fig 2

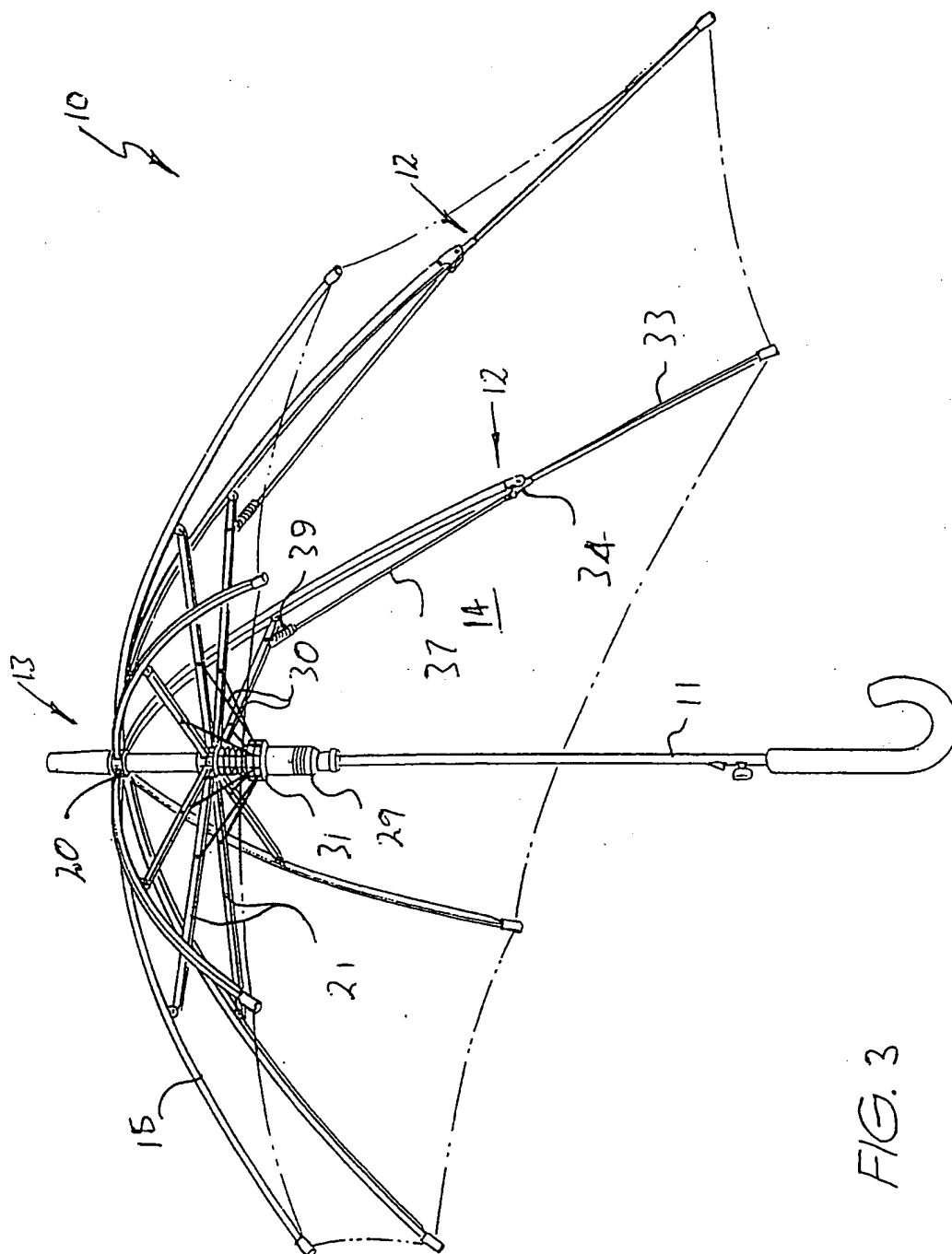


FIG. 3

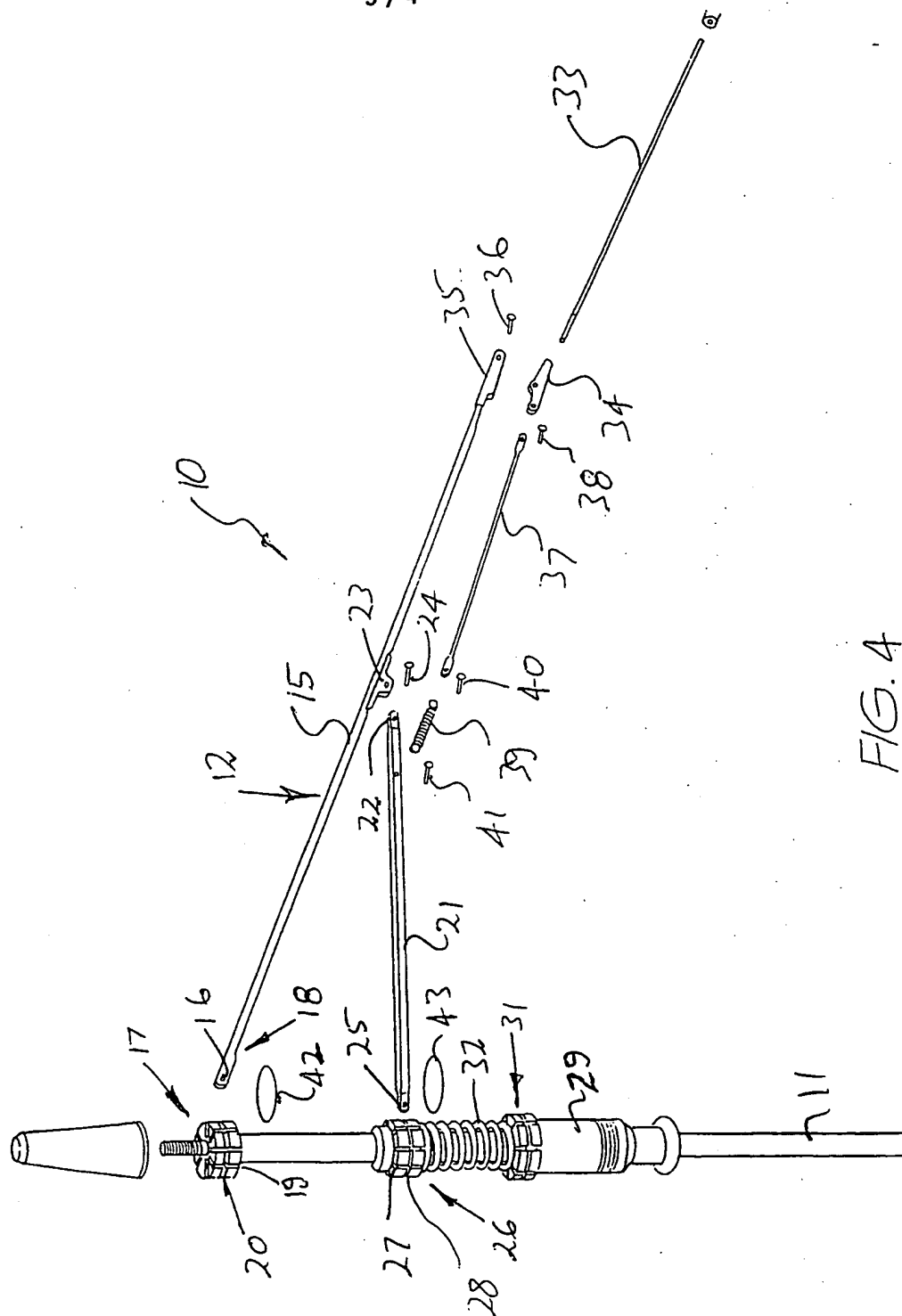
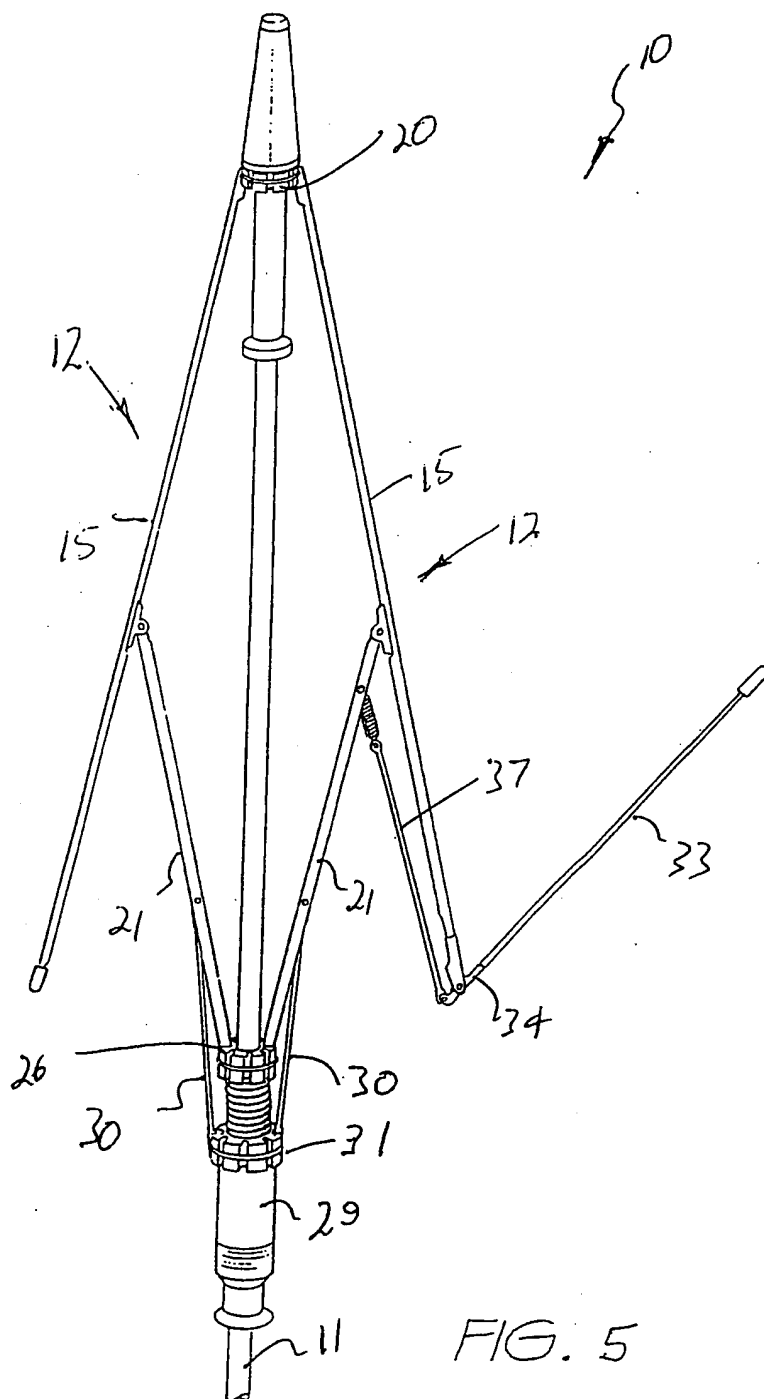


FIG. 4



INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00132

A. CLASSIFICATION OF SUBJECT MATTER

Int Cl⁶: A45B 11/00, 19/10, 25/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC as above

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT: KW (PIVOT: OR ROTAT: OR HING: OR FOLD: OR EXTEN:)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 115636 A (SANKYO YOGASA KABUSHI KAISHA) 15 August 1984 See figure 1	1, 6, 7
X	US 4597400 A (TRUDEAU, Sr) 1 July 1986 See figure 3	1, 6, 7
X	US 4641675 A (WU) 10 February 1987 (Equiv. GB 2191395) See figure 1	1-7

☒ Further documents are listed in the continuation of Box C

☒ See patent family annex

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Date of the actual completion of the international search
22 April 1999

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- 4 MAY 1999

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4884586 A (SZU et al) 5 December 1989 See figure 1	1-7
X	US 5505221 A (GAO) 9 April 1996 See figure 4	1-7
X	AU 42928/96 A (GOU DARZI) 20 June 1996 See figure 2	1-7

INTERNATIONAL SEARCH REPORT

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 8
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

Claim 8 does not comply with PCT Rule 6.2(a).

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
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Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

Information on patent family members

PCT/AU 99/00132

Patent Document Cited in Search Report		Patent Family Member	
EP	115636	JP	59091610

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